DRAFT Subject to agency review

Water Use Efficiency
Science Application Committee
Work Plan
(January 17,2003)

Background

In August 2000, the CALFED Record of Decision established the Science Program, with responsibilities for integrating science into all of the CALFED program elements – including the WUE.

The CALFED WUE Program will require ongoing science input from agency and stakeholder scientists as well as outside independent experts during implementation. In order to secure agency and stakeholder science input, in May 2002, DWR OWUE in cooperation with CALFED staff and other WUE co-lead agencies initiated establishment of an agency/stakeholder science committee named "Science Application Committee" and a committee of independent experts from outside named "Science Review Panel". In coordination with the Science Program, CALFED WUE staff and the agency Program Managers will ensure that WUE implementation of funded actions including administration, implementation, pilot tests, and research are based on sound science, employ an adaptive management strategy, and are consistent with the recommendations of the WUE Implementation Plan and with other CALFED programs. (See attached organization chart).

SAC Resources

The CALFED WUE agencies have not been funded to carry out the science needs of WUE program. Due to downturn in the State economy and lack of human and financial resources, WUE agencies may not be able to commit their limited resources to SAC purposes. SAC will be able to do its tasks if Proposition 50 funding is made available to DWR.

SAC Mission

SAC will provide an agency and stakeholder scientific input into the implementation and application of CALFED WUE plans and actions to meet the CALFED WUE Program's goals and objectives. SAC will assist to:

- Quantify performance of local WUE projects
- Assure that WUE projects address CALFED goals
- Reduce uncertainty through scientific methods
- Employ adaptive management
- Develop and articulate conceptual models

SAC Membership

SAC membership will: (1) reflect the diversity of agency and stakeholder involvement in the CALFED WUE and (2) represent the broadest possible technical expertise required by the scope of the WUE. SAC members may consist of scientists and technical experts in soil, water, environmental and urban issues from DWR, USBR, SWRCB, and NRCS, other CALFED agencies, Agricultural Water Management Council, California Urban Water Conservation Council, consultants, Universities, and other public agencies and interested stakeholders who are willing to serve on the Committee. Membership criteria include having scientific credentials including university degrees or scientific publications, experience in implementing WUE projects, willingness to work voluntarily, and demonstrated ability to work with others. Members are self-nominated. They identify their credentials and contact agency WUE Program Managers or CALFED Program Manager to participate. Agency WUE Program Managers are DWR, USBR, NRCS, and SWRCB WUE program managers.

SAC Role:

SAC is the voluntary technical arm of the CALFED WUE to assist in the articulation and execution of WUE Program science tasks to ensure successful WUE Program implementation. Scientific assistance may be needed in the following:

- Define what data the Program needs to have to be able to assess water use efficiency;
- Help define evaluation criteria, conceptual models or monitoring and evaluation elements that should go into Proposal Solicitation Process and, if requested, serve in the PSP science review process (Science Review Team) to evaluate projects for program importance;
- Help articulate what we want to learn from projects through monitoring and assist in developing monitoring plans designed to address WUE science needs,
- Recommend reporting requirements for CALFED or agency WUE funded projects;
- Participate in evaluating monitoring results and reports from CALFED or agency WUE funded projects and use it to define program effort for future types of projects and recommend adaptive management;
- Develop and identify agricultural and urban performance measures such as water savings, benefits, and effectiveness;
- Develop responses for adaptive management including clearly articulated conceptual models linking projects to goals, monitoring and assessment of projects and classes of program activities relative to goals, and adaptation of program strategy and action plans based on new knowledge; and

- Respond to agency WUE Program Managers questions and help articulate science issues and identify potential research and evaluation needs in collaboration with agency Program Managers and SRP.

CALFED WUE Program Manager role:

- Articulate WUE science needs and submit to SAC;
- Have SRP review SAC recommendations and reports, as appropriate;
- Incorporate applicable SAC recommendations into WUE Implementation Plan;
- Organize and convene the WUE SRP;
- May provide staff or consultant depending on the nature of the task;
- Provide oversight and coordination consistent with the ROD.

CALFED WUE Science Lead role:

- Manage SRP;
- Review SAC documents for CALFED;
- Facilitate SAC and SRP communication; and
- Prepare final CALFED science documents.

Agency WUE Program Manager role:

- Coordinate with each other and CALFED WUE Program Manager;
- Identify overall science needs of the Program;
- Articulate CALFED WUE-related science needs and submit to SAC, as appropriate;
- Assist CALFED to implement WUE science tasks; and
- Facilitate work of SAC by requesting or directing staff, as available.

Role of SAC Chair:

- Represent SAC in other forums, bring issues to SAC through scheduling on agendas, facilitate member discussion, lead SAC meetings, and bring SAC issues to conclusion; and
- Arrange for keeping informal minutes and notify committee members electronically.

Examples of SAC Assignment

Urban Example;
The CALFED ROD states that there will be investment in locally cost-effective BMP's and that this level of investment will generate a certain number of acre-feet of conserved water. In this example, the science task is to verify the investment and resulting water conservation**.** To articulate this urban task, SAC may form an Urban BMP subcommittee to articulate the task and identify the

information needs and analysis needed to verify the funding and conserved water. The Urban BMP subcommittee should contain the following expertise: a resource economist, an urban water conservation expert, and representatives from the CUWCC, DWR, USBR and a local agency.

Other Options for SAC to address an urban task;
(1) CUWCC will use its subcommittee and SAC may ask its members to serve on the CUWCC committee for this task. (2) SAC may hold a workshop by inviting individuals who have completed this kind of water conservation before to present what has worked, what hasn't and provide their recommended information needs. Then follow up with the subcommittee to develop the task by taking the broad information and reviewing the existing information regarding investments in locally cost-effective BMPs and developing a list of information needs and analyses that are needed to verify the local investments and resulting water conservation. (3) SAC may facilitate a forum where CUWCC, Association of California Water Agencies, and California Urban Water Agencies will review and comment on the science needs and make recommendations on the science issue. The follow up steps are similar to option (2).

An Agriculture Example;
CALFED WUE grant and loan program provide funding for activities with the objectives of water saving, flow and timing, and water quality benefits - collectively called Quantifiable Objectives- at local and State levels. The QOs are associated with specific benefits called Targeted Benefits. In addition, Water Management Plans identify benefit or combination of benefits from implementation of each EWMP. Water suppliers are required by the Agricultural Memorandum of Understanding to report on the results of implementation of EWMPs. Water suppliers are also encouraged (through contractual agreement between DWR, USBR, and the Ag. Council) to submit the results of implementation of QOs by signatory water districts and report the results and information on water saving, flow and timing, and water quality benefits to DWR and CALFED.

There is a need to provide a scientific analysis of the data and information to validate stated benefits and achieved goals for each EWMP at local level. The same analysis is needed for validation of achieving QO targets as identified/developed by CALFED/local agencies. The task is to define the scientific analysis needed to validate the stated benefits and achieved goals for each EWMP. SAC may form a subcommittee consisting of experts on agricultural water use, environmental water use, hydrology, irrigation science, and a representative of agricultural local agency to articulate the task. Once the task is defined and an agency is identified to implement it, the scientific review and evaluation of projects begin which may include assumptions, methods of

data collection, data adequacy and quality, analysis of data, and validation of achieved targets. Scientific evaluation furthermore clarifies the links between targeted benefits and achieved results and helps develop or improve conceptual models. This analysis will help to quantify agricultural performance measure(s) and level of WUE Program success in achieving agricultural milestones. Other options similar to the ones stated under Urban Example may be considered here as well.

A Water Recycling Example;
The Water Recycling Monitoring Objective and Research Needs document of CALFED summarized the role of CALFED agencies to carry out the Water Use Efficiency Program as: (1) offer support and incentives through expanded planning, technical, and financial assistance, and (2) provide assurance that cost-effective efficiency measures are implemented. With regard to water recycling, the Water Use Efficiency Program will oversee the many actions to include: help locals and regional agencies comply with water recycling provisions in the Urban Water Management Planning Act; expand State and federal recycling program in order to provide sharply increased level of planning, technical, and financial assistance, and to develop new ways of providing assistance in the most effective manner; provide regional planning assistance that can increase opportunities for use of recycled water. To assess the extent to which the above actions are implemented with consideration of reducing water demand, improving water quality, and expanding recycled water production and use**,** SAC may form a Recycled Water subcommittee to articulate the tasks and identify the information needs and analyses needed to verify the funding and recycled water used in the different water sectors. The Recycled Water subcommittee should contain the following expertise: a public information/ relation specialist, resource economist, a land/commercial development specialist, and representatives from the WateReuse Association, DWR, SWRCB, DHS, USBR and a local agency.

<u>Other Options for SAC to address Recycled Water</u> ;

- Evaluate existing benefits and impacts of current water recycling programs;
- Benefits, costs, and reliability of treatment technologies and their effects on implementation of water recycling projects;
- Effects of incentive/disincentive programs on local agencies and individual water users.

<u>Some specific tasks and issues that SAC may undertake include:</u>

- Science issues related to estimates for 2002 CALFED report (costs and benefits).
- Methodology for Performance Measures - 2004 review.

- Research priorities: ET, and evaporation.
- Develop process for QO refinement and quality assurance of QO work.
- USBR water planner criteria to address CALFED goals.
- GIS and data management needs.
- District characteristics database (i.e. what we are trying to get for measurement).
- Others as agreed to by WUE CALFED and agency Program Managers.

SAC Operating Procedures (See Figure 1)

1. To complete its work, SAC may form task subcommittees that group people with expertise specific to the CALFED WUE science needs or form groups around the CALFED WUE Implementation Plan tasks. As we develop tasks over time, we form a group of experts around it. This approach will integrate across program elements. Alternatively, we can form a subcommittee, as needed, for each of the eight tasks that are identified in the WUE Implementation Plan. These tasks are Loan Program, Grant Program, Oversight and Coordination, Technical Assistance, Research, Measurement and Assurance, Urban BMP Certification, Monitoring and Adaptive Management. Options discussed under Urban Example (above) may be used in combination with a subcommittee.
2. The CALFED WUE Program Manager, CALFED WUE Science Lead, Agency WUE Program Managers (SWRCB, DWR, USBR, NRCS) may articulate and bring their program science tasks, which describes their science needs, to the SAC chair. SAC may itself also identify specific information needs that have come up in the process of implementation of projects. Once a science need is identified, SAC chair will place the issue before the agency WUE Program Managers who will decide on the priority schedule for the task. If approved the SAC chair will schedule the task on the SAC meeting agenda for discussion and for fully articulating the task. If the task given to the SAC is articulated it will be given to the WUE and agency Program Managers to discuss and assign. If task is not completely defined, SAC chair assigns the science needs to a subcommittee to articulate the task. Subcommittee articulates what data and expertise are needed to complete the task, recommends the lead agency(s) or organizations that should take the lead to perform the task, identifies the product, and estimates the resources and schedule. Once the subcommittee fully articulates the task, WUE agencies Program Managers will review the task and decide on how to prioritize and carry out the task. Implementation of actual work will depend on the availability of needed resources in WUE agencies. Presently the WUE agencies have not been given the resources to carry out science tasks. CALFED WUE Program Manager in consultation with CALFED Science Program Manager will

address the SAC resource needs. Once the resources are made available to an agency/entity Program Manager, he/she will assign the task to their agency staff. The Program Manager should figure out how to match agency and other human resources to the task. Agency staff under the direction of the agency Program Manager will work with the SAC chair to complete the work and submit a draft report to agency Program Manager for initial review and to SAC chair for discussion and approval by SAC. In the absence of a willing agency/entity Program Manager, the agency WUE Managers and CALFED WUE Program Manager will find the means to carry out the task.

3. CALFED WUE Program Manager or Science Lead may ask Science Review Panel for review of the task and/or the draft report. SRP will be able to ask to see and review any SAC product. Agency or CALFED Management may also review the SAC work products. CALFED WUE Manager or agency Program Managers will submit any review comments from SRP or agencies to SAC chair and the agency staff for consideration. Once staff incorporates all comments into the task or the draft report, SAC will approve it and SAC chair will submit it to CALFED WUE Program Manager and agency Program Managers for implementation. SAC will have the overall charge of advising the CALFED WUE Manager or agency Program Manager of its recommendation in its final report. To the extent that CALFED staff or agency uses or alters SAC's products there will be identification of the source and changes to SAC's reports and recommendations.
4. CALFED WUE shall designate a member and a WUE point of contact between SAC and CALFED.
5. DWR OWUE staff serves as an interim chair of the SAC, chair will rotate among CALFED WUE agencies and will be appointed by CALFED WUE Program Manager and agency Program Managers.
6. Agencies and stakeholders may attend SAC meetings.
7. SAC work is voluntary and will be supported by its membership. SAC members are expected to provide support including document review and provide other input as appropriate. SAC members' committee-related expenses are expected to be paid by their employers. SAC has no funding to compensate members for their services.
8. SAC is an informal science advisory committee and its meetings are informal.
9. SAC will interact with other standing committees through their representatives.
10. SAC chair will organize SAC meetings and send meeting documents to members electronically.

Schedule

SAC will develop tasks, deliverables, and schedules as needed to complete the task. Tasks will identify the work that needs to be done, the scope of work, intended product, and estimated timeline.

The following segment is intended to describe the relation between SRP and SAC and is for SAC member information only. CALFED WUE Program Manager will prepare a work plan for SRP.

SRP Mission

SRP's mission is to provide overarching review of program strategies, plans, and specific issues of strategic importance. SRP should have the role of defining what is and what is not known about a specific technical issue and articulating uncertainties and initiate review of specific issues of strategic importance to the program. The goal is to mine the ideas and expertise of people outside the process and to have this description of the state of knowledge prepared in an environment that is independent of stakeholder and agency interest. SRP has advisory role. The SRP will define uncertainties on technical issues and will provide peer review of work products generated by the SAC and of the Water Use Efficiency program. The SRP will be composed of senior technical advisors, from outside, with in depth knowledge of an aspect of water use efficiency. Currently the expertise under consideration includes agricultural engineering, hydrology, urban water conservation specialist, economics, project design and management, data management and storage (in coordination with CALFED data management subcommittee). The SRP will be administered by and will report all findings to the CALFED WUE Program Manager.

SRP role:

1) Clarifying the state of knowledge with respect to a specific issue.
2) Reviewing reports that articulate science gaps to bring existing knowledge developed outside the system to bear, advise on the relative importance of causal factors being proposed, and alternative approaches.
3) Providing and helping to secure independent, outside review of proposals, analytical products, and assessments.
4) Presenting summaries of new scientific knowledge to various WUE audiences.
5) Providing reviews and advice on experimental and analytical design.

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SRP Membership

CALFED WUE Program Manager will form the SRP in cooperation with CALFED Science Program. SRP members are independent scientists selected by CALFED from outside.

SRP Operating Procedures

- CALFED WUE Program Manager, Science Lead or his designee will host the SRP, support their work effort, and bring their recommendations to appropriate parties.
- CALFED WUE Program Manager, Science Lead or his designee will be point of contact for items from SAC to SRP.
- SRP may review SAC's work products.
- Members of SRP may serve on the SAC subcommittee and work on specific tasks, if they don't review their own work.

SAC Work Plan Approval Process

The SAC Draft Work Plan was developed by OWUE staff and was presented at the SAC meetings. SAC is involved in reviewing the work plan. Review comments will be considered in revising the present draft. The revised Draft will be sent to CALFED Science Program Manager and CALFED WUE PAC for review. The final draft Work Plan will be submitted to and agreed upon by WUE Program Managers (Tom Gohring, Luana Kiger, Tracy Slavin, Dan Johnson, and Diana Robles). The final Work Plan will be submitted to the CALFED Management Group.

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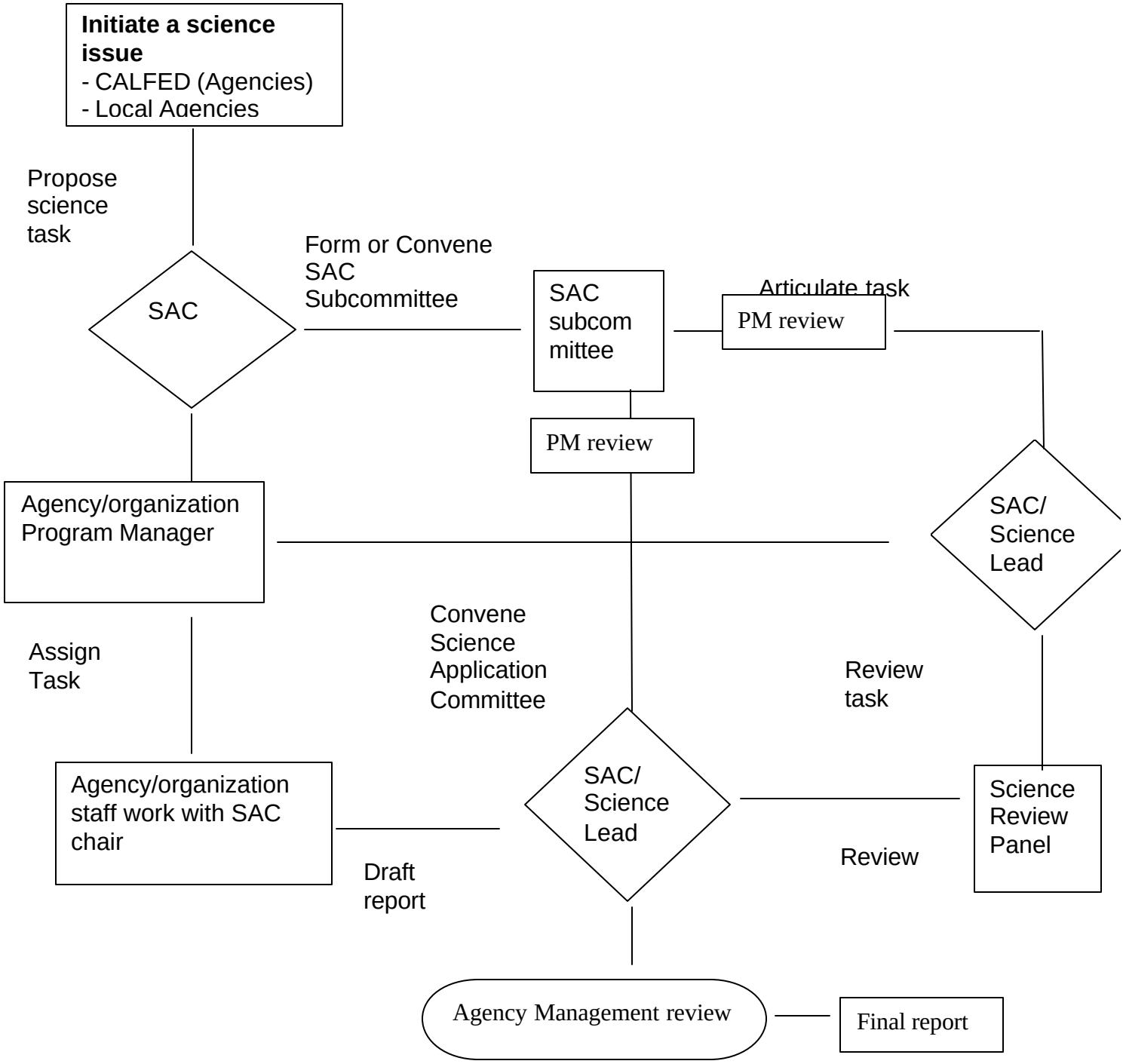

Figure 1. Water Use Efficiency Science Application Committee Process Overview

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Proposed WUE Science Committee Organization Chart